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Clean Air & Energy: Energy: In Depth: Analysis California Overcomes an Electricity Crisis

Since California's electricity crisis began in May 2000, the golden state has been accused of recklessly wasting energy and needlessly delaying construction of new power plants. At the same time, the lack of long-predicted blackouts during the summer of 2001 has been credited to mild weather, a sinking economy and exorbitant utility rates. These are urban myths. This analysis by NRDC's Ralph Cavanagh, accepted for publication in the *Electricity Journal*, documents California's laudable track record on energy efficiency, and highlights the critical role conservation played in easing the state's power crunch.

Since an electricity crisis began in California in May of 2000, it has been widely misdiagnosed. The nation's most energy efficient state has been accused of profligacy; its power-plant siting system has been characterized as obstructionist; and the failure of blackouts to materialize during the summer of 2001 has been credited to good weather, sinking economy and punitive price increases. **None of this is true.** Instead:

1. Electricity consumption increased only modestly in California during the decade of the 1990s, thanks in part to the effective coordination of utility investments in energy efficiency and the state's minimum efficiency standards for buildings and equipment. From 1990-1999, electricity use in California grew at an annual rate of about one percent, matching the state's rate of population growth and lagging far behind the 2.8 percent average growth of the state's economy. Over the same period, electricity use for the nation as a whole grew by 2.2 percent per year, more than twice the annual growth in population.¹ By 1999, energy efficiency investments and standards had reduced California's peak power needs by about 10,000 megawatts (on a 50,000 MW system).²
2. For the year 2000 only, the state's annual energy consumption growth rate spiked to about 4.6 percent. Robust economic growth (almost 9 percent) and warmer weather both contributed.³ Employment growth did not stop in 2001; in June 2001 the annual rate of increase was 2.1 percent, slowing gradually to 1.0 percent by September.⁴
3. What emerged in 2001 was the most successful statewide energy conservation campaign ever conducted. The California Energy Commission reports the following data from the California Independent System Operator for the months of January-September 2001: actual electricity use for the ISO control area (covering more than 80 percent of California electricity use) was down almost five percent over that nine-month period (the most recent for which data are available), compared to a year earlier. And *weather-adjusted* electricity use was down almost six percent over that same nine-month period, compared to a year earlier. The June-September period, which included another relatively hot summer (ranking 25th in the last 107 years, essentially tied with the summer of 2000), produced a decline in actual electricity use of 6.1 percent and an almost identical weather-adjusted drop. The CEC also maintains running estimates of weather-adjusted trends in peak load for the state; the Commission estimates that weather-adjusted peaks for June, July, August and September declined by about 12.2 percent, 9.1 percent, 7.7 percent and 7.0 percent, respectively, compared with the same months in 2000.

The June 2001 reduction represents about 4,750 MW, while avoided peak use for September 2001 was 2,750 MW.⁵ Not coincidentally, by the end of the summer, wholesale electricity and gas prices were back to or below pre-crisis levels.⁶

4. The demand reductions of 2001 reflected a host of coordinated policies and incentives, which were ready in advance and drew on more than two decades of experience. These included a massive public education effort, skillful orchestration of voluntary commitments by the Governor's office, strengthened state efficiency standards, and a host of new financial incentives to save electricity more cheaply than it can be produced. The campaign had already recorded its most dramatic results before significant retail rate increases reached customers in July, so the savings cannot be attributed primarily to price responses. Targeted programs shielded low-income Californians from the rate increases and ensured them access to energy efficiency opportunities.⁷
5. In the early 1990s, the California Energy Commission certified eleven power plant for construction, eight of which (totaling 960 MW) were ultimately completed. Not one power plant application reached the Commission from 1994-1997, reflecting perceived surpluses throughout the West and uncertainties about the future of electric-industry restructuring. But applications revived in 1998, and 31 large gas-fired plants totaling almost 12,000 MW had cleared the system as of October 2000 more than 9,000 megawatts were under construction by then.⁸ And 78 smaller renewable-energy systems totaling more than 1,300 MW had secured financial guarantees under competitive solicitations administered by the Commission, with most anticipating completion by December 2002.⁹ Even before recent legislation streamlined the application process still further, licensing a typical gas-fired plant large renewable facility required twelve months or less.

Obviously, it is not accurate to blame California's 2000-2001 price increases and grid stresses on recalcitrant regulators, obstructionist environmentalists, or profligate citizens. California has long been an energy efficiency leader, and its remarkable reductions in consumption during 2001 have put the system back on track to affordable and reliable electric service. But the state cannot afford to lose focus or intensity. Long-term solutions for the West and the nation as well as California, will require significant additional investments in a balanced portfolio of energy efficiency improvements, transmission grid enhancements, and generating resources.

Related NRDC Pages

Energy Efficiency Leadership in a Crisis: How California is Winning

Notes

1. See EIA: State Energy Data Report 1999 at: <http://www.eia.doe.gov/emeu/sedr/contents.html>; and Natural Resources Defense Council and Silicon Valley Manufacturing Group, *Energy Efficiency Leadership in a Crisis: How California is Winning*, pp. 3-4 (August 2001) (citing additional sources).

2. See California Energy Commission, *The Energy Efficiency Public Goods Charge Report*, December 1999, at 12 (savings estimates cover 1975-1998).

3. The Energy Commission's estimate for electricity consumption in 2000 is 264,429 GWh. See http://www.energy.ca.gov/electricity/consumption_by_sector.html. Note also that 2000 was a day longer than 1999, as a result of leap year.

4. Data are from reports of the California Employment Development Department, *Labor Market Conditions in California*.

5. See CEC, *Total Conservation in the ISO Area* (10/18/01) (continuously updated at the CEC website, www.energy.ca.gov). When loads are adjusted for economic growth, the reductions are larger still. For June - August weather data, see the National Climatic Data Center summary on the

CEC website.

6. For example, the surveys of western electricity prices published in California Energy Markets (October 5, 2001 and October 12, 2001) indicate that October 2001 wholesale rates were as low as 1.5 cents/kWh off-peak and 2 cents/kWh on-peak. Other factors affecting short-term commodity prices included FERC price caps, initiated in July 2001, and numerous new long-term supply contracts throughout the West.

7. For a full review of these programs and measures, see NRDC and Silicon Valley Manufacturing Group, note 1 above.

8. A regularly updated assessment appears at www.energy.ca.gov/sitingcases/backgrounder.html.

9. All these projects are identified at www.energy.ca.gov/renewables/new_renewables_table.html.

ENERGY EFFICIENCY LEADERSHIP IN A CRISIS

How California Is Winning



August 2001

ACKNOWLEDGEMENTS

The William and Flora Hewlett Foundation provided crucial and timely support for this report, and for an ongoing energy-efficiency collaboration between NRDC and SVMG. Both institutions gratefully acknowledge the contributions of Justin Bradley, Margaret Bruce, Chris Calwell, Ralph Cavanagh, Keith Dias, Laura Goldseth, David Goldstein, Noah Horowitz, Leslie Hummel, Jonathan Koomey, Randy Lane, Amory Lovins, Peter Miller, Michelle Montague-Bruno, Derek Naten, Rita Norton, Jason Rodriguez, Richard Rohrer, John Wilson, and Jay Ziegler. Avinash Kar served as the document's skillful and perceptive editor.

ABOUT NRDC

The Natural Resources Defense Council is a national nonprofit environmental organization with more than 400,000 members. Since 1970, its lawyers, scientists, and other environmental specialists have been working to protect the world's natural resources and improve the quality of the human environment. NRDC has offices in New York City; Washington, D.C.; Los Angeles; and San Francisco.

ABOUT SVMG

The Silicon Valley Manufacturing Group was founded by David Packard, of Hewlett-Packard, in 1978. Today, the Group represents 190 of the Valley's most respected private sector employers, who collectively provide 275,000 local jobs - or nearly one of every four jobs in all of Silicon Valley. Among the organization's top priority issue areas are housing, transportation, energy, environment, and education.

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The full text of the report also appears at www.nrdc.org and www.svmg.org.

TABLE OF CONTENTS

Executive Summary	1
The Crisis Unfolds	2
Managing Demand and Improving Efficiency: California's Record	3
Recent Legislative and Regulatory Actions	5
Sustained Financial Incentives Through Electricity Rates	6
Emergency Financial Incentives Through General Fund	7
Energy Efficiency Standards	7
Low-Income Services	8
Silicon Valley Responds: Case Studies In Productive Demand Reduction	8
Hewlett Packard	9
Compaq	10
Roche Bioscience	11
Conclusion	11
Endnotes	13
Appendix I: Summary of California's Demand Reduction Initiatives, 2000-2001	14
Appendix II: California's General Fund Allocations to Energy Efficiency and Demand Reduction, 2001	19
Appendix III: California's 2001 Supplemental Funding for Low-Income Energy Services: A Roadmap	20
Appendix IV: California Utilities' Energy Efficiency Programs: Getting Access	22

EXECUTIVE SUMMARY

All elements of California society and government contributed to extensive electricity demand reductions throughout the first seven months of 2001, substantially reducing the economic and environmental damage associated with the state's worst postwar energy crisis. By June 2001, those reductions had reached almost 4,800 megawatts, a drop of more than 12% in peak electricity use from June 2000, or the equivalent of 10 large power plants. For the seven months ending on August 1, total electricity consumption was down by about 6 percent, compared to the same period a year earlier and adjusted for weather abnormalities. In a state that had started out the year as arguably the nation's most efficient in its use of electricity, this remarkable achievement is the main reason why prospects for electricity reliability and prices now look much better than expected. Experts had feared in May that more than 250 hours of rolling blackouts would disrupt California throughout the summer, shutting down the equivalent of more than two million households per blackout. Moreover, the state's economy continues to grow, with nonfarm employment up more than 2% for the year ending in June. And although many (typically distant) observers have claimed otherwise, California's weather did not turn milder than average until the month of July.

The demand reductions of 2001 were no accident; a host of coordinated policies and incentives were ready in advance. These included a massive public education effort, skillful orchestration of voluntary commitments by the Governor's office, strengthened state efficiency standards, and a host of new financial incentives to save electricity more cheaply than it can be produced. At the same time, targeted programs shielded low-income Californians from electric rate increases and ensured them access to energy efficiency opportunities. The result has been the most successful statewide energy conservation campaign in history.

The companies of the Silicon Valley Manufacturing Group (SVMG) have been in the forefront of that campaign, through their own reductions in electricity use, their efforts to improve energy policies, their employees' conservation efforts at home, and the contribution that their products are making to inexpensive demand reductions. The Natural Resources Defense Council (NRDC) has been an effective advocate for strengthening and coordinating the state's many energy efficiency incentives and standards. An ongoing SVMG/NRDC partnership underscores one of this report's principal points: California's technology leadership is a crucial part of the solution to an overstressed electricity grid, and it is a myth that this leadership is associated with surging electricity needs. Indeed, as our report explains, information technologies are becoming steadily more efficient, even as they allow users to reduce overall energy use in ways that swamp the technologies' relatively modest electricity consumption.

Our report highlights policies and actions that have contributed to Californians' collective success in reducing electricity demand inexpensively, even as we caution against complacency: much remains to be done in order to lock in the gains and ensure that the state never again approaches this precipice. Declarations of victory are premature, but thanks to literally millions of citizens and businesses, it is fair now to conclude that we are winning.

THE CRISIS UNFOLDS

California launched a new spot market in electricity commodities on March 31, 1998, as part of a restructured electric industry. After more than two years of reassuringly low prices and seemingly robust competition, calamity struck:

- Wholesale electricity prices that previously had ranged between 2 and 3 cents per kilowatt-hour soared to at least 15 cents, on average, from June through August of 2000. That average price then doubled again through December 2000 to January 2001, even though demand levels were far below their summer peaks, and at one point the price reached \$1.50 per kilowatt-hour.¹
- Natural gas prices, typically at \$2 to \$3 per million British Thermal Units (BTUs), climbed to nearly \$10 per million BTUs nationally in January 2001, with prices spiking above \$50 in Southern California. As of April 2001, natural gas options contracts on the New York Mercantile Exchange were selling at levels above \$5 per million BTUs for every month through March of the following year.²

Based on the gap between runaway wholesale electricity costs and state-frozen retail electricity rates, the West's two largest electricity distribution companies—Pacific Gas & Electric (PG&E) and Southern California Edison—recorded losses in excess of \$12 billion from May 2000 to January 2001 on unreimbursed wholesale electricity purchases. Consumer advocates countered that these losses had been offset in part by gains on power sales from generators still owned or controlled by the utilities. By any measure, however, the distribution companies were on the brink of insolvency by January 2001, and PG&E filed for bankruptcy in early April. At the same time, notices of supply emergencies became routine throughout the state, as operating reserves dropped below 5 percent for weeks on end during the winter and spring. On seven occasions between January 1, 2001 and May 8, the statewide Independent System Operator was compelled to impose rolling blackouts on portions of the California grid. Soon after, the National Electric Reliability Council (NERC) issued a grim forecast:

- Under “most likely summer 2001 conditions,” California “may experience operating emergencies during not only the peak periods, but also during nonpeak periods;”
- California “may experience peak deficiencies ranging from about 4,500 to 5,500 MW this summer” (equal to about 10 percent of the state's peak needs); and
- “NERC's best estimate is that there will be about 260 hours” of rotating blackouts in the state during the summer, “with an average of about 2,150 MW being involuntarily curtailed in each instance” (equivalent to more than 2 million household).³

From today's vantage point, these predictions might appear alarmist; after all, from May 8 through the release of this report in late August 2001, California experienced *zero* hours of rotating blackouts. But NERC's concerns were well founded and entirely

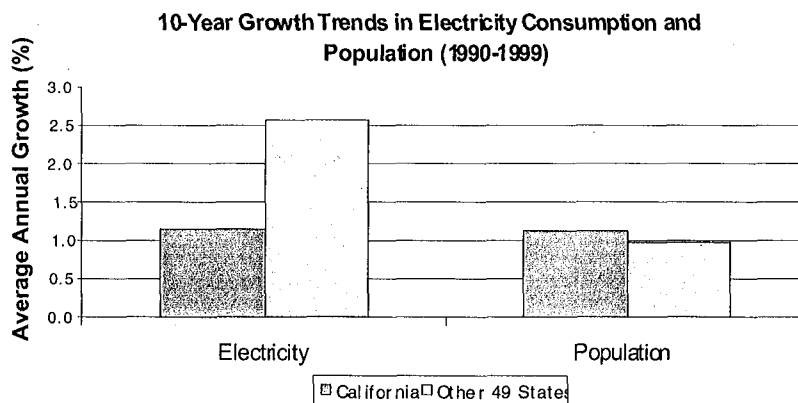
consistent with then-prevailing trends, and they serve as a vivid reminder of what was at stake as California entered the summer. Complacency has no place in an assessment of the dangers that we faced, and the challenges that we still confront.

No single factor explains this crisis. The upswing in natural-gas prices most prominently reflected a prolonged contraction in exploration and storage due to low commodity prices, coupled (in the Southwest) with reduced pipeline capacity as a result of an explosion in the summer of 2000. And much costlier natural gas in turn helped to drive up the operating cost of electric generation. High electricity prices also reflected lower Northwest hydropower production due to poor rainfall and the generally overstressed state of the western power grid, which has suffered from a decade of reduced investment in energy efficiency, load management, generating capacity, and transmission upgrades.⁴ As if all that were not enough, investigations continue of alleged anti-competitive practices by many market participants.⁵ Our purpose here is not to point fingers or assign blame, but instead to identify some extraordinarily productive efforts to restore reliable and affordable power to all Californians.

MANAGING DEMAND AND IMPROVING EFFICIENCY: CALIFORNIA'S RECORD

California has a strong tradition of leadership in encouraging citizens and businesses to get more work out of less energy. For more than two decades, the state has used a productive combination of targeted financial incentives and regularly upgraded efficiency standards, yielding steady reductions in the amount of electricity required to deliver both comfort and products.

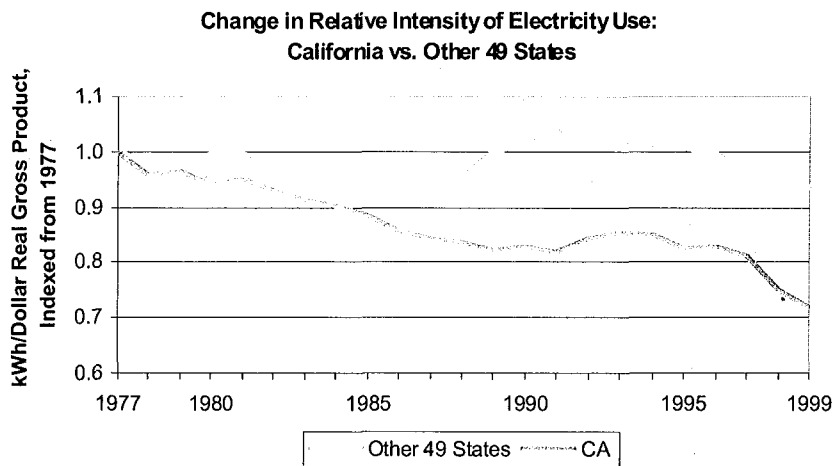
As a result, electricity consumption statewide grew only modestly during the decade of the 1990s.



Source: California Energy Commission (CEC); Energy Information Administration (EIA); US Census Bureau

The annual rate of increase during 1990-1999 was about 1 percent, matching the state's population growth and lagging far behind the 2.8 percent average growth of the state's economy. Over the same period, electricity use for the nation as a whole increased by 2.2 percent per year, more than twice the annual growth in population.⁶

Because California got more efficient more quickly, its electricity intensity declined much faster than that of the rest of the nation.



Source: US Bureau of Economic Analysis; Edison Electronic Institute; EIA; CEC

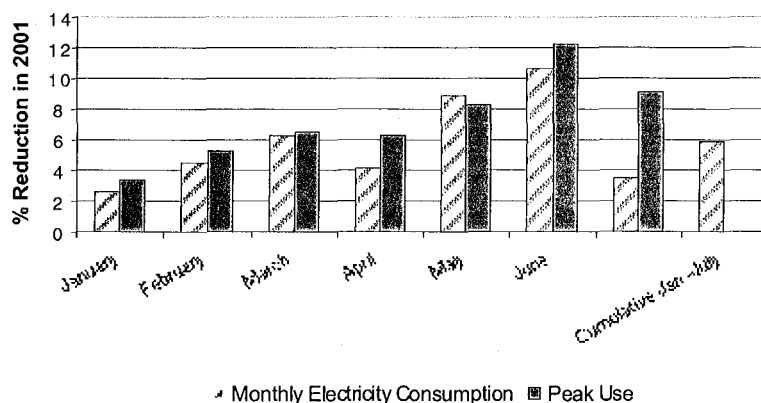
The California Energy Commission (CEC) estimates that by 1999, energy efficiency investments and standards had removed about 10,000 megawatts from California's peak needs: the equivalent of 20 large power plants.⁷

For the year 2000, the California Energy Commission reports a more rapid electricity-consumption growth rate of about 4.6 percent. Contributors included warmer weather and a remarkably robust economy (including a 9.3 percent increase for the year in personal income and 8.7 percent growth in the value of goods and services produced).⁸ Still, from 1997-2000, the electricity intensity of California's economy declined at an annual rate of about 4.4 percent, more than three times that for the rest of the nation.⁹ In the San Francisco Bay Area, the year 2000 capped five years of economic growth averaging 9 percent annually, but the region's electricity consumption increased at only 2 percent per year.¹⁰

In 2001, as the threat of supply interruptions loomed and wholesale prices skyrocketed, Californians responded even more aggressively. For the seven months from January to July 2001, metered electricity consumption was down by about 4.5 percent compared to a year earlier.¹¹ Contrary to widespread claims, weather over this period was somewhat harsher than normal; when "weather adjusted" to reflect typical conditions, the reduction was almost 6 percent. The most recent three-month period, ending in July 2001, produced a decline in actual electricity use of 4.9 percent and a weather-adjusted drop of 7.6 percent. Yet the California economy continued to grow; nonfarm employment increased by 2.1 percent over the year ending in June 2001.¹²

The California Energy Commission also maintains running estimates of weather-adjusted trends in peak load for the state. The commission estimates that weather-adjusted peaks for May, June, and July declined by about 8.3, 12.2, and 9.1 percent respectively, compared with the same months in 2000.¹³

Reductions in Weather-Adjusted Monthly Electricity Consumption and Peak Use, 2000-2001



Source: California Energy Commission

The June 2001 reduction represents about 4,750 megawatts. During that month, a remarkable 29 percent of households served by PG&E cut their electricity consumption by at least 20 percent, compared to June 2000.¹⁴

All of this was crucial to a most unexpected and welcome development: even though June 2001 was hotter than June 2000, system reserves remained continuously above “emergency” levels; a year earlier, emergencies had been declared on six different June days. Not coincidentally, June 2001 also brought sharp reductions in wholesale prices, which continued into July; prices averaged “\$82 per megawatt hour in the first 12 days of June, compared to \$119/MWh in June and \$271/MWh in May.”¹⁵ By July 19, press accounts were appearing about the state’s “Sudden Surplus of Energy.”¹⁶ In the sections that follow, we review the policies and actions that helped get California back on the right track.

RECENT LEGISLATIVE AND REGULATORY ACTIONS

The demand reductions of 2001 were no accident. And while they are in part a tribute to good old-fashioned civic mindedness, it helped that a host of coordinated policies and incentives were ready in advance. These included a massive public education effort, skillful orchestration of voluntary commitments by the Governor’s office, strengthened state efficiency standards, and a host of new financial incentives, funded from both electricity bills and the state’s General Fund. At the same time, broadly supported interventions shielded the most vulnerable Californians from electric rate increases. The result has been the most successful statewide energy conservation campaign in history, led by the Governor himself and drawing on all of the state’s public and private sector resources.

Sustained Financial Incentives Through Electricity Rates

In the last two decades, a small fraction of every California utility bill has been dedicated to investments in energy efficiency, avoiding the need for nine large 500 megawatt (MW) power plants. Programs funded through this “system benefits charge” give homes and businesses incentives to save electricity more cheaply than it can be generated. Long before recent price spikes, independent assessments had pegged the net benefits to California’s economy at almost \$3 billion from 1990 through 1998 alone, compared to the cost of the electricity generation displaced. The average cost of the saved energy was about 2.5 cents per kWh.¹⁷

Energy efficiency programs in California have undergone the most rigorous measurement and verification process of any state in the country. These programs must undergo detailed annual review before the Public Utilities Commission (PUC), where claimed savings receive close scrutiny. The Oak Ridge National Laboratory’s review of more than 50 California program evaluations concluded that, on average, measured electricity savings were within 10 percent of anticipated levels.¹⁸

In September 2000, Governor Davis signed bills extending the system benefits charge on electric distribution service through 2012, while adding an inflation adjustment. Senator Byron Sher and Assemblyman Rod Wright led this strongly bipartisan effort.¹⁹ The result will be more than \$5 billion of investment in energy efficiency, renewable energy, and related technology development from 2002 through 2012, which represents the largest sustainable energy fund ever created by a single legislative action. Additional energy-efficiency funds have been reserved specifically for low-income households, as explained further in subsection D below. Both investor-owned and public power systems will contribute in proportion to their electricity revenues; as a result, most customers will continue paying about three tenths of a cent per hour in system benefits charges (less than 3 percent of their electricity bills). Public power systems will continue to manage their own investments in energy efficiency, renewable energy, and low-income energy services.

No brief summary can do justice to the diversity of utility-sponsored programs that have emerged under the system benefits charge; Appendix IV provides utility-specific website addresses and telephone numbers that will direct readers to details on virtually all major efforts across California. Funding for most of these programs increased substantially in 2001, thanks to strong support from the Public Utilities Commission and the legislature: the budgets for PG&E, Southern California Edison, Southern California Gas, and San Diego Gas & Electric will total more than \$480 million this year, an increase of about 50 percent compared to 2000. It already is clear that these utilities will meet or exceed the PUC’s 2001 target of 440 megawatts of savings to be acquired through direct investment. Utilities’ public education campaigns, including extensive community outreach, also have contributed significantly to independently acquired electricity savings that are not counted in this total. NRDC and SVMG salute the dedicated individuals who have been working overtime on these programs; they are among the heroes of this crisis.

Emergency Programs Using California's General Fund

Before adjourning in August 2000, the California legislature established several demand reduction initiatives at the Public Utilities Commission and the Energy Commission, and added \$50 million in start-up funds from the state treasury. Follow-up enactments in April 2001 greatly expanded this investment, with more than \$730 million from California's budget surplus flowing to measures that would provide immediate demand reductions and more relief for low-income households.

Among the principal elements of the campaign have been a statewide media blitz that has aired nearly \$35 million in energy conservation advertising; literally millions of flyers and mailers; public commitments from hundreds of companies to cut energy use by 20%; still larger reductions averaging 26% in state buildings; wholesale changes in building maintenance practices and schedules; mass distributions of compact fluorescent lights (accounting at last count for 100 saved megawatts) and concerted peak load reductions throughout California's water agencies and farm communities.

An example of the emerging and enduring innovations is the "cool roofs" program, which promotes the use of materials that reduce the heat buildup in buildings by reflecting incoming sunlight, which in turn cuts air conditioning needs. The Energy Commission has reserved \$24.5 million for this purpose, with an initial savings target of 62 MW. An early illustration of the results is this excerpt from an August 10, 2001 California Energy Commission exchange with Chuck Harlow of Jafra Cosmetics in West Lake Village, whose 26,000 square foot "cool roof" was installed in June 2001. According to Mr. Harlow:

There has been a tremendous difference in comfort level and the difference was immediately felt once the roof was installed. I went on to the roof, with sunglasses of course because it is so bright, and I couldn't believe I could actually put my hand down and touch the roof. I thought it would be hot, but it was cool. There is an unconditioned warehouse in the building and it is also very cool. I've actually had employees tell me it was chilly in the warehouse. We have a 23,000 sq. ft. shipping area, and since having the cool roof installed, I've decided to stagger the use of the air conditioners. I don't know exactly how many dollars I've saved due to the roof yet, but my total kWh usage is down 31 percent compared to last year.

Additional details on other program offerings and budgets appear in the Appendices.

Energy Efficiency Standards

The California Energy Commission (CEC) made a strong contribution to improving statewide energy efficiencies with a unanimous January 2001 vote to upgrade the state's building code. The revised standards will result in 10 to 15 percent energy savings in all of California's new residential and commercial buildings. Within five years after the standard became effective on July 1, 2001, savings should reach 1,000 MW, which is equivalent to the peak power production of two large power plants. On the residential

side, the standards will result in installation of energy efficient windows, high-efficiency central air conditioners, and leak-resistant duct systems. Commercial buildings will have vastly improved glazing, and more efficient lighting and ventilation systems. In addition, the new code contains a first-time compliance credit for “cool roofs.”

By the end of the summer, the CEC is also likely to set new standards for a dozen major categories of electricity-using equipment. These include new central air conditioners, coin-operated clothes washers, beverage vending machines, torchiere lamps, traffic signals, exit signs, transformers, and swimming pool heaters. Annual savings of at least 120 MW are expected, at average costs well below those of additional electricity production.²⁰

Low Income Services

Earlier this year, surging wholesale prices forced the California Public Utilities Commission to raise retail rates for PG&E and Southern California Edison by an average of three cents per kilowatt-hour, which “will cost customers of the utilities approximately \$2.5 billion annually.”²¹ Most customers saw these increases for the first time in July 2001. However, the commission exempted all households with incomes at or below 175 percent of federal poverty guidelines (about \$30,000 for a family of four). In April Governor Davis signed legislation that added an emergency infusion of \$260 million from the state’s budget surplus for low-income energy services, much of it targeted specifically at energy efficiency improvements designed to yield enduring reductions in bills for the state’s most vulnerable households. This represents the largest investment ever made for such purposes by any state.

Both NRDC and SVMG have worked to help ensure adoption of these policies, reflecting longstanding commitments to equity and environmental quality in the delivery of energy services. Thanks in part to our joint efforts, California law also ensures that at least \$190 million annually will be available indefinitely for efficiency programs and utility bill discounts for low-income households (the source is a modest surcharge on gas and electric bills). Appendix III provides a roadmap to the new low-income services added in the 2001 legislation.

SILICON VALLEY RESPONDS: CASE STUDIES IN PRODUCTIVE DEMAND REDUCTION

California’s technology sector is a crucial part of the solution to an overstressed electricity grid, in terms of both its own demand reduction efforts and the contribution of its products. It is a myth that technology leadership is synonymous with surging electricity needs. David Isaacs of Hewlett Packard has noted that technology industries employ more than 10 percent of the manufacturing workforce while accounting for less than 5 percent of the manufacturing sector’s electricity use.²² At the Lawrence Berkeley National Laboratory, Jonathan Koomey has shown that direct electricity use for all office, network, and telecommunications equipment, combined with manufacturing energy

embodied in these products, totals only about 3 percent of all U.S. electricity consumption.²³ And the Center for Energy and Climate Solutions has identified numerous ways in which information technology is allowing companies to reduce their overall resource use in ways that swamp the relatively modest electricity consumption of the technologies themselves. For example, e-commerce warehouses are much less energy intensive than the retail facilities that they displace, even after taking into account the energy needed to deliver e-commerce products directly to customers' premises. Joseph Romm, formerly acting assistant secretary at the U.S. Department of Energy, estimates that "the Internet Economy could render unnecessary as much as 3 billion square feet of buildings—some 5 percent of U.S. commercial floorspace" and that "by 2010, e-materialization of paper, construction, and other activities could reduce U.S. industrial energy and greenhouse gas emissions by more than 1.5 percent."²⁴

Meanwhile, Silicon Valley's products continue to improve in efficiency. A Palm Pilot is basically a 1 watt appliance even while being charged.²⁵ A typical new personal computer and monitor together draw 150 to 200 watts in active operations. However, with electricity-saving software properly installed and activated, these devices will power down to 10 to 15 watts during periods of inactivity. When the computer is on, about two-thirds of its consumption is from the cathode-ray-tube (CRT) monitor. Flat screen monitors using only one-third as much electricity as CRTs are replacing them at an accelerating pace.

Claims about the insatiable appetites of electricity-intensive "server farms" (or "data centers") typically are overblown; these buildings, which house computer equipment to support information and communications systems, use less than one-eighth of 1 percent of the nation's electricity supply. Even in the San Francisco Bay area counties, which house fully 10 percent of the nation's server farm capacity, such applications account for only about 1.2 percent of regional electricity consumption.²⁶ And these and other electricity-intensive technology-sector operations present numerous cost-effective opportunities to improve energy efficiency, as demonstrated in assessments by the Rocky Mountain Institute and others.²⁷

Members of the Silicon Valley Manufacturing Group have been both vigilant and entrepreneurial about opportunities to improve energy efficiency at their own facilities. Three case studies help make the point, although of course no concise account can capture the creativity that the SVMG's membership and the rest of California's private sector have displayed during the crisis.

Hewlett Packard

Over some six decades, Hewlett Packard (HP) has progressed from a Silicon Valley garage start-up to a leading global provider of computing and imaging solutions and services, with 93,000 employees—20,000 in California—focused on making technology and its benefits accessible to all. Energy efficiency is a longstanding Hewlett-Packard priority, and the company has been taking additional steps recently to improve its performance. The goals of this effort are to maintain an optimal work environment while minimizing electricity needs. Actions include substantial reductions in average lighting intensity in most buildings, reducing electricity needs for this purpose by as much as 70

percent. HP also carefully monitors and controls temperatures throughout its facilities, and asks its employees to turn off their computers, monitors, printers and other devices when not in use.

While these ongoing conservation programs have resulted in annual energy savings in excess of 25 million kWh and annual expense savings in excess of \$2 million, they have not caused any significant reduction in productivity. While HP is dimming lights and controlling temperatures, it has been careful to make sure that these measures maintain employee comfort and productivity.

Overall, in the first seven months of 2001, HP has reduced its year-over-year electrical consumption by approximately 7 percent at its facilities throughout the U.S. In California, the reductions have been 7, 12, and 21 percent at the Bay Area, Roseville, and San Diego sites, respectively.

HP continues to make investments in more robust computer-based energy control and monitoring systems. Having these systems in place has allowed the Roseville and San Diego sites to shed load voluntarily when asked by their utilities, and has allowed the Cupertino and Palo Alto sites to enter into agreements with PG&E and the city of Palo Alto to exempt them from rolling blackouts in exchange for rapid and significant cuts in electrical demand during system emergencies. If called upon to shed loads in all of these locations, HP can deliver more than 5 MW back to the electrical grid.

HP continues to look for opportunities to make financially sound investments in energy conservation technology. Among the projects currently under consideration are high-efficiency water chillers, solar water heating, and digital control systems. Also, as a high-tech company, HP is pursuing International Standards Organization (ISO) 14001 certification for many of its facilities, with a long-term strategy of integrating its energy and environmental policies with this rigorous certification process.

Compaq

Compaq Computer Corporation, a Fortune Global 100 company, is a leading global provider of technology and solutions. In Silicon Valley, Compaq employs more than 3,000 Californians at its NonStop Division campus in Cupertino and its manufacturing facility in Fremont.

Compaq's internal Environmental, Health and Safety Standard requires the incorporation of energy conservation measures into new building construction designs, as well as building modifications and build-out plans. Compaq facilities also are operated and maintained with a strong inclination toward energy conservation. In 2000, the Fremont facility doubled its manufacturing space and occupancy without an increase in energy consumption, by using a variety of energy conservation methods and controls. That list includes a new control system that automatically monitors and adjusts use of electricity for heating, ventilating, air conditioning, and lighting. As one result, Compaq is able to make much greater use of outside air for cooling, and the company can allow building temperatures to float upward several degrees during power system emergencies.

During the second quarter of 2001, conservation measures yielded a 20 percent reduction in overall energy consumption for all Compaq's Silicon Valley facilities,

compared to usage during the same period last year. These savings provided considerable cost relief during a challenging economic period in California.

Compaq also has responded to demand curtailment requests by the Independent System Operator (ISO) by reducing energy consumption by an additional 10 percent. During periods of impending blackouts, appeals were made to employees to curtail all non-essential loads, including reducing lighting in offices and conference rooms, sending email instead of faxes whenever possible, and turning off PCs, monitors, and printers before going home.

Since the summer of 2000, Compaq has taken a strong leadership position with the Silicon Valley Manufacturing Group (SVMG). Compaq has joined and hosted energy committees and blackout buster subcommittees, and has shared efficiency strategies and ideas with other companies. In addition to its involvement recently in workshops sponsored by PG&E, Santa Clara Power, and others, the company will carry out energy conservation upgrades and retrofits to its Cupertino facilities. These improvements target over 1.3 million square feet of facility space, and should produce additional annual energy savings of \$300,000.

Roche Bioscience

Roche Bioscience is a research-based healthcare company focusing on the discovery of new medicines. Headquartered in Palo Alto, it employs 1,100 Californians on its 17-building campus.

Thanks to investments in energy efficiency and demand reduction, Roche was able to cut electricity needs at those 17 buildings by almost 15 percent for the 7 months ending in July 2001, compared to the same period in 2000. The savings, totaling 4.6 million kWh, are worth more than \$320,000 in avoided operating costs.

Moreover, Roche has developed and demonstrated the capacity to shed an additional 15 percent of its load within 30 minutes at times when the power system is under stress. This on-demand reduction, which represents about 1.5 MW, is achieved by shutting down non-essential lights and equipment as well as temporarily raising temperature set points for chilled water and building interiors. Executing these measures collectively with a sophisticated control system allows Roche to meet short- and long-term demand reduction objectives without relying on emergency diesel generators.

Roche has been an active participant in the city of Palo Alto Utility's Summer 2001 Load Curtailment Program, and the Company also took full advantage of the city's new Commercial Advantage Program. Recent installations include more than 50 high efficiency fan motors, 3 large water-chilled coolers, and a lighting retrofit. The company has also installed extensive submetering equipment across all the buildings on its campus, and carefully analyzed control system data to find additional opportunities for efficiency improvements.

CONCLUSION

We are confident that Silicon Valley firms and technologies will continue to drive statewide, national, and international trends toward improved efficiency and demand

reduction. And while the digital economy urgently needs reliable electricity services, it does not require or imply large and sustained increases in electricity consumption. From the perspective of society's energy resource constraints, Silicon Valley exemplifies the solutions, not the problem.

For California as a whole, the statewide demand reductions described in this report are confounding those who predicted disaster for 2001. We are retaking control of our energy destiny, although we cannot afford any weakening of resolve or action.

Californians have demonstrated that they know what is needed to ensure affordable and reliable electricity services while preserving environmental quality. To that objective, and to the energy-efficiency policies and investments that are moving our state swiftly forward, NRDC and SVMG remain firmly committed.

ENDNOTES

- ¹ See R. Smith, "Probe of California Power Prices Begins, But New Plants Aren't Seen as Solutions," *Wall Street Journal*, September 11, 2000 ("[t]he average cost of power, per megawatt hour, was \$185 in August, \$117 in July and \$167 in June"). A price of \$1.50 per kWh cleared the California Power Exchange's day ahead market for deliveries at 6 am on December 13, 2000, according to the PX website (www.calpx.com). The weighted average cost of system power purchased through the Power Exchange from November 20 through December 20, 2000 was 28 cents per kWh; for the period December 20 through January 22, 2001, it rose to 29.4 cents per kWh. These weighted averages are reported by Green Mountain Energy in the form of retail electricity bills distributed to customers for those months.
- ² This reflects the Henry Hub natural gas options contract prices listed on nymex.com through March 2002, as of April 5, 2001. Prices since have dropped sharply, and by August 2001 contracts for March 2002 were available for about \$3.50 per million BTUs.
- ³ North American Electric Reliability Council, 2001 Summer Special Assessment: Reliability of the Bulk Electricity Supply in North America (May 2001), p. 11.
- ⁴ For example, compared with averages during the 1995-2000 period, generation from the Northwest's federal hydropower system dropped by more than 5,000 MW during the months of March - June 2001. Bonneville Power Administration, Power System Data for the Week Ending July 13, 2001.
- ⁵ For a provocative treatment, see R. McCullough, "Price Spike Tsunami: How Market Power Soaked California," *Public Utilities Fortnightly* (January 1, 2001). The California Independent System Operator renewed formal claims of anticompetitive actions by generators on March 1, 2001, and the ISO now contends that overcharges during the year ending in May 2001 were about \$9 billion. T. Davis, Davis: On Second Thought, FERC Refund Order Stinks, *The Energy Daily*, August 1, 2001, p. 1.
- ⁶ Source: EIA: State Energy Data Report 1999 at: <http://www.eia.doe.gov/cmdu/sedr/contents.html>.
- ⁷ See California Energy Commission, *The Energy Efficiency Public Goods Charge Report*, December 1999, at 12 (savings estimates cover 1975-1998).
- ⁸ About 7 percent of the total increase reflects the addition of an extra day of consumption due to leap year. The Energy Commission's estimate for electricity consumption in 2000 is 264,429 GWh. See http://www.energy.ca.gov/elcc/tricity/consumption_by_sector.html. Personal income growth data are from California State Auditor, *Energy Deregulation: The Benefits of Competition Were Undermined by Structural Flaws in the Market, Unsuccessful Oversight, and Uncontrollable Competitive Forces* (March 2001), p. 58.
- ⁹ A.B. Lovins, *What Happened in California: Facts, Myths and Issues* (Rocky Mountain Institute, www.rmi.org: June 2001), at 3 (analyzing data from the California Energy Commission and the U.S. Energy Information Administration).
- ¹⁰ Bay Area Economic Forum, *THE BAY AREA - A KNOWLEDGE ECONOMY NEEDS POWER* (April 2001), at 20.
- ¹¹ Available data reflect the control area of the California Independent System Operator, covering more than 80 percent of statewide electricity use.
- ¹² California Employment Development Department, *Labor Market Conditions in California*, July 13, 2001, page 1.
- ¹³ See California Energy Commission, *Total Conservation in the ISO Area* (August 2001) (continuously updated at the CEC website, www.energy.ca.gov/electricity/peak_demand_reduction.html) When loads are adjusted for economic growth, the reductions are larger still.
- ¹⁴ See Joe Garofoli, PG&E Customers Earn \$7.6 Million for Conservation", *San Francisco Chronicle*, July 13, 2001.
- ¹⁵ Jessica Berthold, CDWR: California Electricity Costs, Prices Continue to Decline in July, *Dow Jones Newswires*, July 17, 2001.
- ¹⁶ James Sterngold, *California's New Problem: Sudden Surplus of Energy*, *New York Times*, July 19, 2001.
- ¹⁷ See, e.g., Sheryl Carter, *Investments in the Public Interest: California's Public Benefit Programs Under Assembly Bill 1890* (Natural Resources Defense Council, January 2000) (citing sources).
- ¹⁸ M. Brown & P.E. Muhlmeister, *Summary of California DSM Impact Evaluation Studies* (Oak Ridge National Laboratory, ORNL/CON-403, October 1994).
- ¹⁹ The bills in question were AB995 (Wright) and SB1194 (Sher).
- ²⁰ Memorandum from Jim Hollarnd, Energy Analyst, Energy Efficiency Division, California Energy Commission, to Ralph Cavanagh, NRDC (July 31, 2001).
- ²¹ California Public Utilities Commission, Decision 01-03-082 (March 27, 2001), p. 2.
- ²² Scott Nance, Tech Industry: We are Not Energy Guzzlers, *The Energy Daily*, June 14, 2001, p. 3.
- ²³ See <http://enduse.lbl.gov/projects/nfotech.html>.
- ²⁴ Statement of Joseph Romm, Executive Director, Center for Energy and Climate Solutions, before the U.S. House of Representatives Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs of the Committee on Government Reform (February 2, 2000).
- ²⁵ Energy consumption estimates for personal computers and Palm Pilots were provided to the authors in a personal communication from Jon Koomey, Lawrence Berkeley Laboratory, August 10, 2001.
- ²⁶ These estimates and their derivation appear in Jennifer D. Mitchell-Jackson, *Energy Needs in an Internet Economy: A Closer Look at Data Centers* (July 2001), pp. 53-54, available at <http://enduse.lbl.gov/projects/nfotech.html>.
- ²⁷ For an extensive discussion, see www.rmi.org/images/other/E-NcgawattsForFabs.pdf (indicating, for example, that an RMI review of eight chip fabrication plants found opportunities to save more than 50 percent of energy used for heating, ventilating and air conditioning, with after-tax returns on investment exceeding 50 percent).

APPENDIX I

SUMMARY OF CALIFORNIA'S DEMAND REDUCTION INITIATIVES, 2000-2001

REBATES FOR NON-RESIDENTIAL ENERGY EFFICIENCY AND DISTRIBUTED GENERATION PROJECTS

Utility / Organization	Program Name	Sector	Program Description	Amount Funded	Web Address	Phone
California Energy Commission	Innovative Peak Load Reduction Program	General Efficiency	Accepts broad range of projects that reduce peak demand	up to \$250/kW	www.energy.ca.gov/peakload/bring_watt.html	800-555-7794
California Energy Commission	Demand Responsive Building Systems	Demand Response	Incentives for Demand Responsive Systems in Large Buildings	\$250/kW up to \$2 million	www.energy.ca.gov/peakload/cash_kilowatts.html	800-555-7794
California Energy Commission	"Cool Savings" Low-Energy Building Materials	Roofing & Solar Shading	Incentives for Cool roofing or other energy saving materials	Depends on Case	www.energy.ca.gov/peakload/businesses.html	800-555-7794
California Energy Commission	Renewables Buy-Down	Distributed Generation	Rebates on Installation of Renewable Energy System - solar electric (photovoltaic), solar thermal, wind, fuel cells.	\$4.50/watt up to 50%	www.consumerenergycenter.org/buydown/index.html	800-555-7794
California Energy Commission	Efficiency Financing	General Efficiency	3% Financing for Public or Non-Profit Agency Energy Efficiency Projects	up to \$2 million per application	www.energy.ca.gov/efficiency/financing/index.html	916-654-4008
California Energy Commission	Bright Schools Program	Energy Audits	Assistance for retrofits in schools and community colleges in California	Depends on Case	www.energy.ca.gov/efficiency/brightschoools/index.html	800-555-7794

Utility / Organization	Program Name	Type Rebate	Program Description	Amount Funded	Web Address	Phone
California Energy Commission	Energy Partnership Program	Load Management	Assist local government improving energy efficiency of facilities	Up to \$10,000	www.energy.ca.gov/efficiency/partnership/program.html	800-555-7794
City of Palo Alto Utility	Commercial Advantage Program		Equipment Type	Rebate Value	www.cpau.com/programs/ci-advantage/cindex.html	650-329-2241
		Lighting	Lighting	up to 50%		
		Motors	Motors	up to \$630 per motor		
		HVAC & Cooling	Unitary Air Conditioners	\$60-\$210 per ton		
			Heater Rejection Equipment	\$7-\$300 per chiller ton		
			Chillers	\$7-\$210 per ton		
			Evaporative Coolers	\$70 per ton		
			Variable Frequency Drives	\$40 per hp		
			Reflective Window Film	\$0.50 per sf		
East Bay Municipal Utility District	Water Efficiency Rebates	Water Saving	Rebates up to half installation costs of water efficiency equipment for business customers	up to 50%	www.ebmud.com/services/conservation/business.html	510-835-3000
Pacific Gas & Electric	Express Efficiency Equipment Rebates	Lighting	Equipment Type	Rebate Value	http://www.pge.com/03_save_energy/003b_bus/003b1a6_light_rebate.shtml	800-468-4743
			Electronic Ballasts	\$2.00-\$10.00 per lamp		
			Exit Signs	\$4.50-\$13.50 per fixture		
			Exterior HID Fixtures	\$11.00-\$25.00 per fixture		
			Hardwired Fluorescents	\$9.00-\$21.50 per fixture		
			Induction Lamps & Fixture	\$6.00-\$60.00 per lamp		

Utility / Organization	Program Name	Type Rebate	Program Description	Amount Funded	Web Address	Phone
Pacific Gas & Electric	Express Efficiency Equipment Rebates	Lighting	Equipment Type	Rebate Value	http://www.pge.com/03_save_energy/003b_bus/003b1a6_light_rebate.shtml	800-468-4743
			Interior HID or HOT-5	\$23.00-\$50.00 per fixture		
			Occupancy Sensors	\$8.25-\$22.00 per fixture		
			Photocell	\$3.50 per photocell		
			Screw-in CFLs	\$3.50-\$6.25 per lamp		
			T-5 or T-8 Lamps & EB	\$2.00-\$7.50 per lamp		
			T-5 or T-8 Lamps & EB	\$1.00-\$2.25 per lamp		
			Timeclocks	\$9.00 per time clock		
Pacific Gas & Electric	Express Efficiency Equipment Rebates	HVAC	Equipment Type	Rebate Value	http://www.pge.com/03_save_energy/003b_bus/003b1a equip_rebate.shtml	800-468-4743
			Package Terminal AC	\$50.00 per ton x (new EER - min EER)		
			Variable Frequency Drives	\$40.00 per horsepower		
			Evaporative Coolers	\$70.00 per ton		
			Reflective Window Film	\$0.45 cents per sq. ft.		
			Setback Thermostats	\$12.00 per unit		
Pacific Gas & Electric	Express Efficiency Equipment Rebates	Refrigeration	17 different efficiency measures	\$75-150 per ton, or variable by item	http://www.pge.com/03_save_energy/003b_bus/003b1a equip_rebate.shtml#fridge	800-468-4743
Pacific Gas & Electric	20/20 Rebate	Electric Bill Rebate	Business customers who reduce their summer 2001 energy consumption during peak periods by 20% are eligible to receive a 20% credit for peak usage on their bill	credit equal to 20% of payment for peak electricity usage on your bill	http://www.pge.com/03_save_energy/003a_res/2020/pdf/20_20_letter.pdf	800-743-5000

Utility / Organization	Program Name	Type Rebate	Program Description	Amount Funded	Web Address	Phone
Pacific Gas & Electric	Savings by Design	New Construction	Incentives for owner and design team to build energy efficient facilities. Design assistance also available.	Variable	www.savingsbydesign.com	800-468-4743
Pacific Gas & Electric	Standard Performance Contracting	All Building Systems	Incentives for energy efficiency retrofits	Up to \$500,000 per project site	http://www.pge.com/003_save_energy/003b_bus/003b1e0_standard_perf_cont.shtml	800-468-4743
Silicon Valley Power, City of Santa Clara	Lighting Rebates	Lighting	Equipment Type	Rebate Value	http://www.siliconvalleypower.com/business/products_and_services/public_benefits_programs_money_in_your_pocket.html	408-615-5694
			Electronic Ballasts	\$4.00 per lamp controlled		
			Exit Signs	\$9.00-\$27.00 per fixture		
			Halogen Lamps	\$0.90-\$1.30 per lamp		
			Hardwired FL Fixtures	\$18.00-\$45.00 per fixture		
			HID & HPS Fixtures (In)	\$36.00-\$64.00 per fixture		
			HID & HPS Fixtures (Out)	\$22.00-\$50.00 per fixture		
			Occupancy Sensors	\$15.00-\$30.00 per lamp		
			Reflectors w/ Delamping	\$1.50-\$4.00 per lamp		
			Screw-In CFLs	\$7.00-\$12.50 per lamp		
Silicon Valley Power, City of Santa Clara	HVAC & HVAC-related Motors Rebate	HVAC	Equipment Type	Rebate Value	http://www.siliconvalleypower.com/business/products_and_services/public_benefits_programs_money_in_your_pocket.html	408-615-5694
			Unitary Air Conditioners	\$50-\$140 per ton		
			Unitary Heat Pumps	\$100-\$280 per ton		
			Variable Frequency Drives	\$70 per hp		

Utility/ Organization	Program Name	Type Rebate	Program Description	Amount Funded	Web Address	Phone
Silicon Valley Power, City of Santa Clara	New Construction	New Construction	Incentive payments for installation of energy efficient equipment exceeding Title 24 Standards in buildings greater than 30,000 sq. ft.	Variable	http://www.siliconvalley.com/business/products_and_services/public_benefits_programs_money_in_your_pocket.html	408-615-5694
Silicon Valley Power, City of Santa Clara	Commissioning Rebate	Building Commissioning	Pays for costs of commissioning building energy systems	100% of costs up to \$50,000	http://www.siliconvalley.com/business/products_and_services/public_benefits_programs_money_in_your_pocket.html	408-615-5660
Silicon Valley Power, City of Santa Clara	RD&D Showcase Grants	RD&D	Significant incentives for upgrading existing facilities.	Up to \$150,000 or 50%.	http://www.siliconvalley.com/business/products_and_services/public_benefits_programs_money_in_your_pocket.html	408-615-5694
Silicon Valley Power, City of Santa Clara	Customer Directed Program	All Building Systems	Design your own HVAC or other project to improve energy efficiency of your operations.	Variable	http://www.siliconvalley.com/business/products_and_services/public_benefits_programs.html#the	408-243-0873

APPENDIX II

CALIFORNIA'S GENERAL FUND ALLOCATIONS TO ENERGY EFFICIENCY AND DEMAND REDUCTION, 2001

[Senate Bill 5X (Sher) & Assembly Bill 29X (Kehoe)]

I. PRINCIPAL ALLOCATIONS FROM GENERAL FUND

A. ENERGY EFFICIENCY INVESTMENTS [TOTAL = \$507,000,000]

CPUC ADMINISTERED PROGRAMS: \$142,000,000

CEC ADMINISTERED PROGRAMS: \$185,000,000

DEPARTMENT OF GENERAL SERVICES: \$40,000,000

DEPARTMENT OF COMMUNITY SERVICES: \$120,000,000

CALIFORNIA CONSERVATION CORPS: \$20,000,000

B. PUBLIC EDUCATION ON ENERGY EFFICIENCY [TOTAL = \$17,000,000]

C. REAL-TIME METERS [TOTAL = \$35,000,000]

D. LOW-INCOME BILL ASSISTANCE [TOTAL = \$100,000,000]

E. RENEWABLE ENERGY [TOTAL=\$74,500,000]

[Does not include some reallocations of funds within pre-existing accounts]

GRAND TOTAL FOR ALL FIVE PURPOSES: \$733,500,000

II. NEW MANDATE TO BREAK LINKAGE BETWEEN UTILITIES' REVENUES AND ELECTRICITY SALES:

AB 29X, section 10 [Public Utilities Code section 739.10].

III. OTHER PROVISIONS:

The bills also contain substantial provisions promoting the development of distributed energy resources and encouraging improvements in the environmental performance of existing generation.

APPENDIX III

CALIFORNIA'S 2001 SUPPLEMENTAL FUNDING FOR LOW-INCOME ENERGY SERVICES: A ROADMAP

Senate Bill 5 (Sher) and Assembly Bill 29 (Kehoe) passed the California legislature overwhelmingly in the first Extraordinary Session of 2001, and Governor Davis signed both bills into law on April 11, 2001. Together they represent the largest investment that any state has ever made in low-income energy services. Key provisions include:

1. SB5X, section 5(a)(3): provides \$20 million "to augment funding for low-income weatherization services provided pursuant to section 2790 of the Public Utilities Code, and to fund other energy efficient measures to assist low-income energy users."

FUNDING AGENCY: PUBLIC UTILITIES COMMISSION.

2. SB5X, section 5(a)(2): provides \$100 million to reduce electricity and gas bills through discounts for low-income customers eligible to be enrolled in the California Alternative Rates for Energy Program established pursuant to section 739.1 of the Public Utilities Code. Up to 10 percent of the funds may be used for mass marketing to increase enrollment. **FUNDING AGENCY: PUBLIC UTILITIES COMMISSION.**

3. SB5X, section 5(g): provides \$120 million "for the purpose of supplementing the Low-Income Home Energy Assistance Program (LIHEAP)", including the creation of a California Low Income Home Energy Assistance Program, which is designed to "increase energy conservation and reduce demand for energy services in low-income households" and "shall include weatherization and conservation services, energy crisis intervention services, and cash assistance payments." Eligibility shall include households that do not exceed the greater of 60 percent of the state median income or 80 percent of the county median income, and "in no area shall eligibility be provided to households whose income is greater than 250 percent of the federal poverty level for this state." Funds distributed in 2001 "shall be distributed to have maximum possible impact on reducing energy demand immediately" and "first priority shall be to distribute funds through community-based programs with which [the Department of Community Services and Development] has existing contacts." The Department "may develop an RFP process to solicit additional grantees." Grantee agencies "shall spend the maximum amount of California LIHEAP funds for weatherization assistance, but in no event less than 50 percent of the funds available by grantee." [For broad definition of "weatherization", see PUC Code section 2790(c)] There is also a requirement that, "where appropriate," "not less than 85 percent of the funds shall be expended for direct rebates, purchases, direct installations, buy-downs, loans, or other incentives that will achieve reductions in peak electricity demand and improvements in energy efficiency." **FUNDING AGENCY: DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT.**

4. AB29X, section 14(d): provides \$20 million “for costs associated with the purchase, distribution, and installation of subcompact fluorescent lights, other energy saving measures, and water saving devices.” The program “shall provide for broad geographic distribution of the purchased materials throughout the state, identify neighborhoods and areas with dense populations that can easily be served in large numbers, and take into account community need.” **FUNDING AGENCY:**
CALIFORNIA CONSERVATION CORPS, IN CONSULTATION WITH
DEPARTMENT OF COMMUNITY SERVICES AND ENERGY COMMISSION

APPENDIX IV

CALIFORNIA UTILITY ENERGY EFFICIENCY PROGRAMS: GETTING ACCESS

Alameda Power and Telecom:

www.alamedapowerandtelecom.com; (510) 748-3947

Anaheim Public Utilities:

www.anaheim.net/utilities; (714) 765-4250, general energy efficiency;
(714) 765-4267, residential; (714) 765-4259, business

Azusa Utilities:

www.ci.azusa.ca.us/utilities; (626) 812-5225

Burbank Utilities:

www.burbank-utilities.com; (818) 238-3731, energy conservation; or (818)
238-3638, public benefits

City of Healdsburg Electric Utility Department:

www.ci.healdsburg.ca.us; (707) 431-3346

City of Long Beach Gas and Electric:

www.ci.long-beach.ca.us/gas; (562) 570-2000

City of Palo Alto Utilities:

www.cpau.com; (650) 329-2241

City of Pasadena Water & Power:

www.ci.pasadena.ca.us/waterandpower/; (626) 744-6970

City of Redding Water & Electric:

www.ci.redding.ca.us/electric; (530) 245-7208

City of Riverside PUD:

www.ci.riverside.ca.us/utilities; (909) 826-5485

City of Roseville Water & Electric:

www.rosevilleelectric.org; (916) 79-POWER (797-6937)

City of Vernon Water & Electric:

www.cityofvernon.org/Utilities.htm; (323) 583-8811

Imperial Irrigation District:

www.iid.com; (800) 303-7756

Lodi Electric Utility:

www.lodielectric.com; (209) 333-6800, ext. 2030

Los Angeles Dept. of Water & Power:

www.greenla.com; (800) GREEN LA (473-3652)

Modesto Irrigation District:

www.mid.org; (209)526-7458 or (209)526-7366, Energy Management Dept.; or (800) 433-4327, low-income rebates, and (209) 527-0978, weatherization

Pacific Gas & Electric:

www.pge.com; (800) 468-4743, business; (800) 933-9555, residential

Plumas-Sierra Rural Electric Cooperative:

www.pslnc.com/psrec/electric/index.html; (530) 832-6032 or (800) 555-2207, customer service

Sacramento Municipal Utility District:

www.smud.com; (916) 732-6609, business; (888) 742-7683, residential

San Diego Gas & Electric:

www.sdge.com; (800) 411-SDGE (7343)

Silicon Valley Power-City of Santa Clara:

www.siliconvalleypower.com; (408) 244-SAVE, residential Energy Conservation Hotline; (408) 615-5694, business

Southern California Gas:

www.socalgas.com; (800) 427-2000, business; (800) 427-2200, residential; (213) 244-5644, incentives for licensed contractors

Southern California Edison:

www.sce.com; (800) 736-4777

Truckee Donner PUD:

www.tdpud.com; (530) 587-3896, customer service; (530) 582-3931, Conservation Dept.

Turlock Irrigation District:

www.tid.org; (209) 883-8300

Power glut may doom new plants

State says 31 proposed generators probably will not be needed

Mark Martin, Chronicle Sacramento Bureau

Wednesday, November 28, 2001

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URL: -

Sacramento -- A state agency created earlier this year to finance new power plants as insurance against electricity shortages has halted negotiations with companies that want to build natural gas-fired generators.

Thirty-one proposed projects that would have added more than 3,200 megawatts of electricity by next summer have been held up as officials of the California Power Authority determine whether the plants are needed.

With reports suggesting that California will survive next summer without blackouts and the state facing a glut of power as a result of long-term contracts with energy suppliers, the power authority isn't in a hurry to erect more natural-gas-fired plants, officials said.

"It's looking less and less likely that these projects will be needed by next summer," said Amber Pasricha, a power authority spokeswoman.

The Legislature and Gov. Gray Davis created the authority in May as an energy safety net for the state. Using \$5 billion in revenue bonds, the idea was to create state-financed peaker power plants to be used during shortages.

But companies that had signed letters of intent with the power authority to build new plants have been told this month that those plans are being shelved for now.

Californians' much-improved conservation habits, along with new plants that have come online this year, have helped stabilize the energy crisis.

And \$43 billion worth of contracts the governor signed with energy suppliers to provide power have forced the state's energy-buying agency, the Department of Water Resources, to sell off excess power at a loss.

"We don't have any guarantee from DWR that they'll buy the power (from any new peaker plants)," Pasricha said.

Peaker plants are typically run during times of peak demand, such as hot summer days. Authority officials had said earlier this year that the state needed to build dozens of peakers, an opinion that has slowly changed.

The authority is instead focusing on financing renewable energy projects, such as wind farms and conservation programs. The authority has signed letters of intent with numerous companies that could create as much as 2,271 megawatts of alternative energy.

The renewable projects are less reliable and cannot always be counted on during times of

high demand.

One megawatt is enough power to light 750 typical California homes.

The move away from building more power plants was applauded by one energy expert.

"The days of blackouts are over," said Peter Navarro, a professor of business at the University of California at Irvine who studies the state's energy market. "We have an embarrassment of power riches."

Navarro said the energy contracts -- which he called one of the worst public policy decisions in the history of California -- provide too much power to the state, at far too high a price.

"Those contracts call for so much power, there's no need for any more," he said.

Whether the peaker plants will ever be built remains in question.

S. David Freeman, the chairman of the power authority and the Davis adviser who helped negotiate the contracts, suggested at a hearing Monday that the power authority could instead use its money to provide low-cost financing to companies building plants that are already doing business with the state as an incentive for the companies to renegotiate their contracts.

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